**IN THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. *(Original):* A method of optimizing lithographic processing to achieve substrate uniformity, comprising:

deriving correlation information indicative of photoresist behavior, comprising:

exposing a pattern onto a plurality of subfields of a plurality of substrates such that, for each of said substrates, said subfields are repeatedly exposed with the pattern at different focal positions of a lithographic exposure apparatus,

processing each of said substrates at different target processing conditions,

measuring attributes of each of said subfields within each of said processed substrates,

determining a characteristic for each of said subfields based on said measured attributes, said characteristic representative of photoresist behavior, and

extracting correlation information regarding said subfield characteristics and said different target processing conditions;

detecting non-uniformities in a subsequent substrate, comprising:

exposing said pattern onto a plurality of subfields of said subsequent substrate such that said subfields are repeatedly exposed with the pattern at different focal positions of said lithographic exposure apparatus,

processing said subsequent substrate at a production processing condition,

measuring attributes of said subfields within said processed subsequent substrate,

determining said characteristic for each of said subfields within said processed subsequent substrate based on said measured attributes, and

identifying differences among said subfield characteristics of said processed subsequent substrate; and

adjusting said production processing condition based on said correlation information.

2. *(Original):* The method of Claim 1, wherein said plurality of substrates and said subsequent substrate comprise substantially similar photo-resist properties.

3. *(Original:)* The method of Claim 1, wherein said production processing condition is included in said different target processing conditions.

4. *(Original):* The method of Claim 1, wherein said extracting correlation information further includes relating, for each of said different target processing conditions, a corresponding characteristic value.

5. *(Original):* The method of Claim 4, wherein said adjusting said production processing condition further includes,

determining an expected characteristic value,

referring to said correlation information to indicate a corresponding production processing condition, and

adjusting said processing to achieve said indicated corresponding production processing condition.

6. *(Original):* The method of Claim 5, wherein adjusting said processing further includes spatially altering said processing based on said variations across at least one of said processed subsequent substrate and said subfields within said processed subsequent substrate.

7. *(Original):* The method of Claim 1, wherein said characteristic is based on Bossung model curvature.

8. *(Original):* The method of Claim 7, wherein said different target processing conditions comprises a range of baking temperatures and said production processing condition falls within said range of baking temperatures.

9. *(Original):* The method of Claim 8, wherein said correlation information further includes averaging each of said Bossung curvatures for each of said plurality of processed substrates baked at a specified baking temperature to determine baking temperature as a function of curvatures.

10. *(Original):* The method of Claim 9, wherein said identifying differences among said subfield characteristics includes determining an Bossung curvature corresponding to a subfield of said processed subsequent substrate that contains a different value than an expected Bossung curvature value.

11. *(Original):* The method of Claim 10, wherein said adjusting said processing includes,

determining an expected characteristic value,

referring to said correlation information to indicate a corresponding production processing condition, and

adjusting said processing to achieve said indicated corresponding production processing condition.

12. – 16. *(Cancelled).*

17. *(Previously Presented):* A method of optimizing uniformity in lithographic processing, comprising:

exposing repeatedly a pattern at different exposure conditions on a subfield of a substrate with a lithographic projection apparatus,

processing said substrate at a production processing condition,

measuring attributes of said subfield of said processed substrate,

determining a characteristic of said subfield of said processed substrate based on said measured attributes,

identifying differences between said calculated characteristics;

determining differences in production processing condition on the basis of said identified differences, and;

adjusting said production processing condition based on said determined differences.

18. *(Previously Presented):* The method of Claim 17, wherein the different exposure conditions by which the pattern is exposed includes operating at different focal positions of the lithographic projection apparatus.

19. *(Previously Presented):* The method of Claim 17, wherein the measuring of attributes is performed by a scanning electron microscope, a spectroscopic ellipsometer, a reflectometer, a scatterometer, an electric linewidth measurement tool, a focused ion beam, an e beam, an atomic force microscope, a defect inspection tool or an overlay measurement tool.

20. *(Previously Presented):* The method of Claim 17, wherein said production processing condition comprises a post exposure bake.

21. *(Previously Presented):* The method of Claim 17, wherein said uniformity comprises the uniformity of the critical dimension (CDU).

22. *(Previously Presented):* The method of Claim 17, wherein said uniformity comprises the uniformity over a substrate.

23. *(Previously Presented):* The method of Claim 17, wherein said adjusting said production processing condition comprises adjusting the temperature of the post exposure bake.

24. *(Previously Presented):* A method of deriving correlation information indicative of photoresist behavior by:

exposing repeatedly a pattern at different exposure conditions on subfields of a plurality of calibration substrates with a lithographic projection apparatus,

processing each of said calibration substrates at different target processing conditions,

measuring attributes of said subfields,

determining a characteristic for each of said subfields based on said measured attributes, said characteristic representative of photoresist behavior, and

extracting correlation information regarding said subfield characteristics and said different target processing conditions.

25. *(Currently Amended):* The method of Claim [[1]] 24 further including ~~using the correlation information of claim 24,~~ processing substrates at a production processing

condition, wherein said production processing condition is included in said different target processing conditions.

26. *(Previously Presented):* The method of Claim 24, wherein said different target processing conditions comprises a range of baking temperatures.

27. *(Previously Presented):* The method of Claim 25, wherein said characteristic is based on Bossung model curvature.

28. *(Previously Presented):* A method of optimizing lithographic processing to achieve substrate uniformity, comprising:

deriving correlation information indicative of photoresist behavior by micro-exposing a pattern at different focal positions onto a plurality of subfields within a plurality of substrates, processing each of said substrates at different target processing conditions, measuring attributes of each of said subfields within each of said processed substrates, determining a Bossung curvature characteristic for each of said subfields based on said measured attributes, and correlating each Bossung curvature characteristic to said different target processing conditions;

detecting non-uniformities in a subsequent substrate by micro-exposing said pattern at different focal positions onto a plurality of subfields within said subsequent substrate, processing said subsequent substrate at a production processing condition that is consistent with at least one of said different target processing conditions, measuring attributes of said subfields within said processed subsequent substrate, determining said Bossung curvature characteristic for each of said subfields within said processed subsequent substrate based on said measured attributes, and identifying differences among said subfield characteristics of said processed subsequent substrate; and

adjusting said production processing condition based on said correlation information by determining an expected characteristic value Bossung curvature characteristic for each of said subfields within said processed subsequent substrate, referring to said correlation information to indicate a corresponding production processing condition, and adjusting said processing to achieve said indicated corresponding production processing condition.

29. *(Previously Presented):* The method of Claim 28, wherein said plurality of substrates and said subsequent substrate comprise substantially similar photo-resist properties.

30. *(Previously Presented):* The method of Claim 28, wherein said different target processing conditions comprises a range of baking temperatures and said production processing condition falls within said range of baking temperatures.

31. *(Previously Presented):* The method of Claim 30, wherein said correlation information further includes averaging each of said Bossung curvatures for each of said plurality of processed substrates baked at a specified baking temperature to determine baking temperature as a function of curvatures.

32. *(Previously Presented):* The method of Claim 31, wherein said adjusting said production processing condition includes adjusting local thermal zones of baking plate that correspond to said subfields within said processed subsequent substrate.